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Exploratory and Confirmatory Factor Validation and Psychometric Properties of the HR Roles for HR Managers in Malaysia

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ABSTRACT

The effectiveness of the Human Role Assessment Survey Questionnaire, HRASQ, (Conner and Ulrich, 1996) was investigated with a sample of 108 Human Resource (HR) managers. The exploratory and confirmatory factor analyses showed that the 3-subscale structure of the HRASQ was valid. In addition, the results verified that the HRASQ had high internal reliability. These results indicated that the HRASQ and its subscales can be used in research related to role of the HR in Malaysia.

Keywords: *HR roles, reliability, validity, HR managers, HRASQ*

Introduction

The Human Role Assessment Survey Questionnaire (HRASQ), formulated by Conner and Ulrich (1996), has been the most popular self-administered instrument to measure the role of Human Resource (HR). The HRASQ is based on the Human Resource (HR) role model described by Ulrich (1997), which is the most prominent questionnaire in this area.

Ulrich (1997) divides HR roles into four clusters: *administrative expert, employee champion, change agent*, and *strategic partner. Administrative expert* concerns more with process efficiency that

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involves people and most of the HR function's time is spent on this role. This role 'requires that HR professionals design and deliver efficient HR processes for staffing, training, appraising, rewarding, promoting, and otherwise managing the flow of employees through the organization'. Meanwhile, *employee champion* requires the HR know the concerns of employees and spend time talking to them and listening to their concerns rather than processes. It operates largely at an operational rather than strategic level. The HR role as *change agent*, is that of a facilitator, involving modeling change to other departments, being a positive advocate of change across the entire organization. It also resolves employee issues arising from change, and embed change by implementing efficient and flexible processes. This role is both strategic and process oriented. The final role, *strategic partner*, is that HR must make sure that its practices, processes, and policies complement the overall organizational strategy. It must also develop the capacity to execute that strategy in the minimum amount of time. Ulrich (1997) mentioned that "the strategic HR role focuses on aligning HR strategies and practices with business strategy". Ulrich's model is highly recognized by HR professionals, both in research and practice.

Recently, HR roles have been studied increasingly by many scholars. Specifically, previous empirical studies on Ulrich's HR roles examined organizational learning capability (Bhatnagar and Sharma, 2005), strategic role competence (Pietersen and Engelbrecht, 2005). Studies were also on the difference between HR roles at the corporate and unit level (Raub *et al.*, 2006), E-HRM (Voermans and van Veldhoven, 2007), and HR competencies (Long and Wan Khairuzzaman, 2008).

There has been increasing concern on the HR function to become more competitive to the organization. According to Ulrich (1997), the dynamic business environment requires HR managers to fulfill four roles mentioned earlier. In Malaysia, studies done by Yusliza and Hazman Shah (2008) and Long and Wan Khairuzzaman (2008) did not conducted validity tests. Although the validity of the HRASQ was studied in the industrialized countries in USA (Conner and Ulrich, 1996), India (Bhatnagar and Sharma, 2005), and the Netherlands (Voermans and Van Veldhoven, 2007) and recently, among the newly industrialized countries of Eastern Asia, it remains uncertain whether it is applicable to population in Malaysia who has a different socioeconomic structure, culture and more labor-intensive industries. The stage of validation seems crucial for the examination of the psychometric properties of an instrument and allows international comparison. As a result, the purpose

of this study was to retest the psychometric characteristics of the HRASQ in a Malaysian culture.

Method

The current study focused on HR managers in large firms. In this study, the unit of analysis was the individuals (HR managers). HR managers are those who work directly for or within the HR department (Boselie and Paauwe, 2005). They help the organization by aligning HR practices with business strategy (Ulrich, 1997) and are responsible for activities that require long-term projections such as HR planning (Kulik and Bainbridge, 2006).

This study obtained the mailing addresses of all 724 HR managers from the Federation of Malaysian Manufacturers' 2006 Directory, a sampling frame of manufacturing and service firm's information and mailing list. The mailing list included HR managers who were employed in Malaysian companies with 150 or more full-time employees for large manufacturing firms, whilst, 50 or more full-time employees for large service firms. Based on the size criterion identified, 611 manufacturing companies and 113 service companies (totaling to 724 companies) were identified as the population for this study.

Large firms normally have a formal organizational structure and differentiated with a high likelihood of HR departments for handling HR (Tzafrir, 2005). Smaller companies very often do not have characteristics of a formal personnel department (Mayrhofer *et al.*, 2004). Surveys were mailed in July 2006, accompanied by a cover letter and prepaid self-addressed envelopes for the return of the questionnaires.

Completed questionnaires were obtained from 108 HR managers. This represented a response rate of 15 percent. The majority of respondents reported that they were HR Managers (74.1%) of which 57.4 percent females and 42.6 percent males. It was found that the HR managers in this study were mostly Malays (57.4%), followed by Chinese (25.9%), Indians (10.2%), and other races (6.5%). They were experienced in their current position at an average of 8.05 (SD = 6.00) years. Their mean age was 39.2 years and 81.5 percent of them reported to have a university degree or higher.

Measures

Demographic Questionnaire

The questionnaire was prepared by the researcher. In this questionnaire, participants were asked to report their age, working experience in current organization, gender, race, and educational qualification.

HR Roles

The role of an HR department as proposed by Ulrich (1997) was adapted for this study. In measuring the four roles of HR (strategic partner, change agent, employee champion, and administrative expert), 40 items of Human Role Assessment Survey Questionnaire were adapted from Conner and Ulrich (1996). On the scale, the respondents were asked to indicate on a seven-point Likert-scale where 1 represented very low and 7 very high.

Organizational Structure Scale

Organizational structure was measured in two dimensions: formalization and centralization. Centralization was assessed using a five-item centralization scale described by Hage and Aiken (1967). The items measured the degree of concentration of decision making with regard to task performance. Formalization was assessed using a five-item scale adapted from research by Hage and Aiken (1967). Respondents were asked to answer using a 7-point Likert-type scale (ranging from *strongly disagree* to *strongly agree*) for each item.

Human Resource Management Effectiveness

HRM effectiveness was assessed by two dimensions (the effectiveness of the HR roles and the effectiveness of the HR contributions) using the scales developed by Wright *et al.* (2001). The effectiveness of the HR roles (5 items) was assessed on a seven-point scale with 1 (not meeting needs) to 7 (all needs met) scale. The effectiveness of the HR contributions (10 items) were assessed by asking the respondents to rate their agreement with ten statements regarding HR's contribution using 1= not at all to 7 = to a great extent.

Results

Exploratory Factor Analysis of the HR Roles Scale

The Kaiser-Meyer-Olkin index of adequate sampling was 0.93 for the sample. This result indicated that the data represented a homogeneous collection of variables that were suitable for factor analysis. The Barlett's test of sphericity was significant for the sample, indicating that the set of correlations in the correlation matrix were significantly different from zero and suitable for factor analysis.

The principal components factor analysis with varimax rotation is reported in Table 1. As can be seen in Table 1, 27 items had high loading on factors for which they were intended. The three factors with eigenvalues greater than 1 explained the 75.64% of the total variance. Factor 1 (eigenvalue = 15.86, 58.74% variance) was labeled as Business Partner. Eight items of the Employee Champion loaded on Factor 2 (eigenvalue = 3.00, 11.10% variance) but only two of the Administrative Expert loaded on Factor 3 (eigenvalue = 1.57, 5.80% variance).

Descriptive Statistics and Reliability

The means and standard deviations for the total HR roles and the three subscales are presented in Table 2 where the means for the subscales are: Business Partner (M = 84.44, SD = 18.43), Employee Champion (M = 42.53, SD = 8.72), and Administrative Expert (M = 10.41, SD = 2.35).

The resultant factors from the principal components analyses were further analyzed to assess whether reliability of these measures met the minimum threshold of .70 (Nunnally, 1978). Sekaran (2003) stated that the internal consistency of measures is indicative of the homogeneity of the items in the measure that tap the construct. It can be seen that, all the measure of the variables exceeded the acceptance level .70 (Nunnally, 1978).

Confirmatory Factor Analysis of the HR Roles

Confirmatory factor analysis (CFA) is comparable to EFA in some respects, but philosophically it is rather different. CFA involves analyzing the relationship between latent (unmeasured or theoretical construct) and observed (measured or indicators) variables (Tabachnick and Fidel, 2001). In this respect, CFA does not use statistical results to determine

Table 1: Factor Analysis of HR Roles

Items	Factors		
	F1	F2	F3
FACTOR 1: Business Partner			
HR develops processes and programs to link HR strategies to accomplish business strategy.	.76	.38	
HR is seen as a business partner.	.74		
HR's credibility comes from helping to make strategy happen.	.77		
HR is an active participant in business planning.	.78	.33	
HR helps the organization accomplish business goals.	.83	.35	
HR spends time on strategic issues.	.85		
HR works to align HR strategies and business strategy.	.79	.42	
HR is measured by its ability to help make business strategies.	.82		
HR participates in the process of defining business strategies.	.78		
HR makes sure that HR strategies are aligned with business strategy.	.83	.31	
HR's credibility comes from making change happen.	.83	.31	
HR is seen as a change agent.	.75		
HR is an active participant in organization renewal, change, or transformation activities.	.81	.31	
HR is measured by its ability to help an organization anticipate and adapt for future issues.	.82		
HR works to reshape behavior or helps anticipate future people needs.	.73	.43	
HR makes sure that HR processes and programs increase the organization's ability to change.	.65	.50	
HR spends time on supporting new behaviors for keeping a firm competitive.	.76		
FACTOR 2: Employee Champion			
HR develops processes and programs to take care of employee personal needs.	.37	.82	
HR works to offer assistance to help employees meet family and personal needs.		.77	
HR is an active participant in listening and responding to employees.		.87	
HR spends time on listening and responding to employees.		.88	
HR's credibility comes from maintaining employee morale.		.78	
HR participates in building employee morale.	.31	.81	
HR makes sure that HR processes and programs meet need of employees.	.42	.78	
HR helps the organization generate employee commitment.	.45	.72	
FACTOR 3: Administrative Expert			
HR works to monitor administrative processes.			.88
HR is seen as an administrative expert.			.92
Eigenvalue	15.86	3.00	1.57
Percentage of Variance	58.74	11.10	5.80
Total Variance Explained	58.74	69.84	75.64
KMO Measure of Sampling Adequacy	.93		
Approximate Chi-Square	3276.026***		

Note. $N = 108$. Items included for the respective factors are underlined for identification; ***$P < .001$.

Table 2: Descriptive and Reliability for Scores on the Three Dimensions of HR Roles

Items/Subscales	*M*	*SD*	*a*
Business Partner	**84.44**	**18.43**	**.97**
HR develops processes and programs to link HR strategies to accomplish business strategy.	4.96	1.35	
HR is seen as a business partner.	4.73	1.44	
HR's credibility comes from helping to make strategy happen.	4.91	1.26	
HR is an active participant in business planning.	4.90	1.30	
HR helps the organization accomplish business goals.	5.08	1.28	
HR spends time on strategic issues.	4.72	1.46	
HR works to align HR strategies and business strategy.	5.00	1.47	
HR is measured by its ability to help make business strategies.	4.86	1.23	
HR participates in the process of defining business strategies.	4.55	1.31	
HR makes sure that HR strategies are aligned with business strategy.	5.06	1.37	**.96**
HR's credibility comes from making change happen.	5.06	1.29	
HR is seen as a change agent.	4.91	1.32	
HR is an active participant in organization renewal, change, or transformation activities.	5.23	1.14	
HR is measured by its ability to help an organization anticipate and adapt for future issues.	5.05	1.19	**.91**
HR works to reshape behavior or helps anticipate future people needs.	5.22	1.06	
HR makes sure that HR processes and programs increase the organization's ability to change.	5.19	1.16	
HR spends time on supporting new behaviors for keeping a firm competitive.	5.00	1.32	
Employee Champion	**42.53**	**8.72**	
HR develops processes and programs to take care of employee personal needs.	5.40	1.27	
HR works to offer assistance to help employees meet family and personal needs.	5.06	1.35	
HR is an active participant in listening and responding to employees.	5.44	1.26	
HR spends time on listening and responding to employees.	5.39	1.24	
HR's credibility comes from maintaining employee morale.	5.44	1.18	
HR participates in building employee morale.	5.31	1.16	
HR makes sure that HR processes and programs meet need of employees.	5.31	1.26	
HR helps the organization generate employee commitment.	5.19	1.19	
Administrative Expert	**10.41**	**2.35**	
HR works to monitor administrative processes.	5.28	1.22	
HR is seen as an administrative expert.	5.13	1.24	
Total	**137.37**	**25.97**	**.97**

the number of factors and loadings as in EFA. This is because, the researcher must specify both the number of factors that exist within a set of variables and which factor each variable load highly on before the results can be computed (Hair *et al.,* 2006).

Therefore, the appropriateness of a three-factor model representing the HR roles was evaluated through CFA using an AMOS software. To assess convergent validity through CFA, the proposed variables have to present a holistic fit. There are multiple indices that are used to determine the fit of the model and operationalize the different aspects of the model fit (Bentler, 1990; Kelloway, 1995; Hair *et al.*, 2006). According to Bentler (1990) and Hair *et al.* (2006), the proposed model has to illustrate a satisfactory fit in terms of absolute fit, incremental fit and model parsimony. Absolute fit indices are a direct measure of how well the model specified by the researcher reproduces the observed data. These indices include chi-square statistics (χ^2), normed chi-square or relative chi-square (χ^2/df), goodness-of-fit (GFI), adjusted goodness-of-fit (AGFI), and root mean-square error of approximation (RMSEA). Incremental fit indices differ from absolute fit indices in that they assess how well a specified model fits relative to some alternative baseline model. The score for the incremental fit model ranges from 0 to 1. A score close to 1 suggests a perfect fit whereas 0 refers to there being no difference between hypothesized and independent model. The indices of the incremental fit comprises the Normed Fit Index (NFI), the Comparative Fit Index (CFI), Tucker Lewis Index (TLI) or Non-Normed Fit Index (NNFI) and Relative Noncentrality Index (RNI).

Finally, parsimony fit indices refer to the application of parameters or the coefficient of variables. The fewer the estimated parameters used in the model, the more parsimonious the model (Bentler, 1990; Hair *et al.,* 2006). The indices include the Parsimony Goodness-of Fit Index (PGFI), The Parsimony Normed Fit Index (PNFI), and Aikaike Information Criterion (AIC).

Garver and Mentzer (1999) state that many fit indices do not meet the above criteria simply because they are adversely affected by sample size. For instance, the chi-square is the most common method of evaluating overall fit, but it is frequently criticized due to its high sensitivity to sample size, and the fact that the significance level can be misleading (Hair *et al.,* 2006). Therefore, based on these criteria, they propose the use of the TLI, the CFI and the RMSEA. Moreover, TLI and CFI are preferred when dealing with samples with fewer than 200 respondents because they are likely to produce biased estimates (Bentler,

1990; Kline, 1998). Based on the important criteria suggested in the above discussion, this study used the fit indices namely, 1) the TLI or NNFI; 2) the CFI; and 3) the RMSEA. Nevertheless, this study still reports the χ^2 and χ^2/df as these figures are also important in examining the validity. TLI and CFI fit indexes range from 0 to 1, with values of 0.90 or higher indicating an adequate fit, a value greater than 0.95 as a very good fit. For RMSEA, values below 0.05 indicate a good fit (Bentler, 1990) and values between 0.05 and 0.08 represents satisfactory fit (Hair *et al.*, 2006).

AMOS version 7 was use to run the CFA and the results from the variables of HR roles showed that based on modification indices and standardized error, a few items were deleted to get the data fit. In this case, BP4, BP5, BP9, BP12, BP15, BP16, EC23, and EC24 were eliminated to ensure the data fits the model (Figure 1).

$$\text{Construct Reliability (CR)} = (\Sigma\lambda)^2 / [(\Sigma\lambda)^2 + \Sigma(1 - \lambda j^2)]$$

$$\text{Variance Extracted (VE)} = \Sigma\lambda^2 / [\Sigma\lambda^2 + \Sigma(1 - \lambda j^2)]$$

where:

λ = Standardized regression weight

$1 - \lambda j^2$ = Measurement error for each indicator/item

Figure 1: Formulas for variance extracted and construct reliability

The fit indexes for the three variables: $\chi^2 = 249.50$ ($df = 149$, $p < 0.001$), ($\chi^2/df = 1.674$), RMSEA =0.079, CFI = 0.950 and TLI = 0.942. Overall, the fit indexes in this study indicated that the model of these three variables provided a good fit to the data. Additionally, the factor loading for each indicator was above the benchmark of 0.70 (Hair *et al.*, 2006). Therefore, the convergent validity did exist for the study variables of the measurement models.

Reliability Test via AMOS

Alternatively, the composite reliability and variance extracted measures for each construct via structural equation modeling was also examined. In structural equation modeling, the value associated with each latent variable-to-item equation measures the reliability of that individual item (Garver and Mentzer, 1999). The stronger the correlation of the

systematic component, the higher the reliability associated with the indicator to its latent variable. Furthermore, structural equation modeling construct reliability values do not assume that the individual items have equal reliabilities (Bollen, 1989).

The AMOS programme does not provide the construct's scale reliability and variance extracted value automatically, so manual calculation is required by using the formula given in Figure 2 (Garver and Mentzer, 1999).

In Figure 2, the λ represents the standardized factor loadings and j is the indicator/item. For the construct reliability, the formula specifies that the numerator equals the standardized parameter estimates (in AMOS, standardized regression weights) between a latent variable and

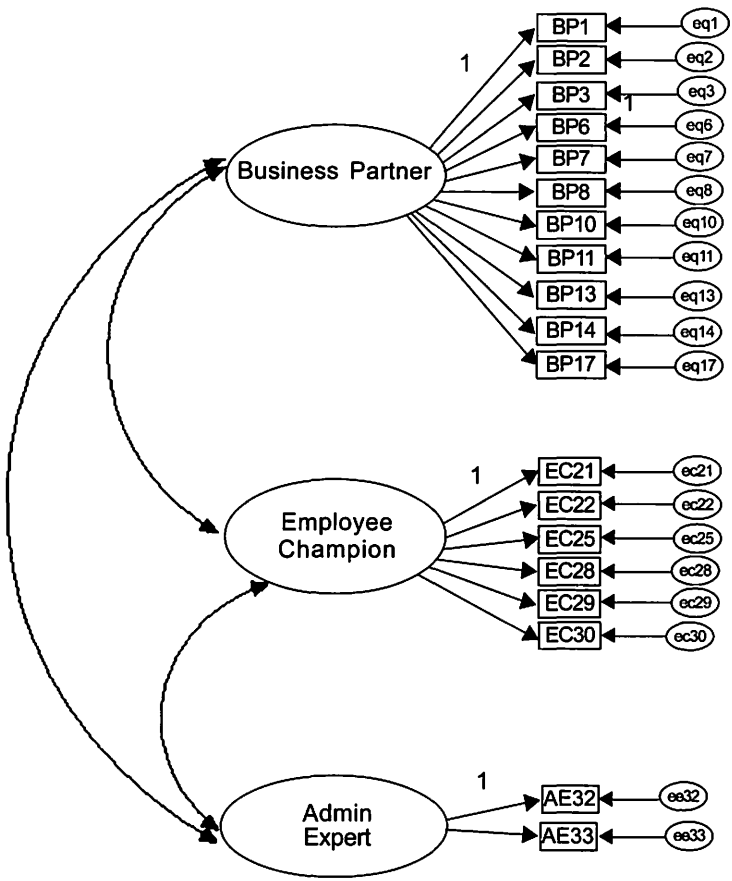

Figure 2: Confirmatory Factor Analysis for HR Roles

its indicators summed, and then the summation is squared. The denominator equals the numerator plus the summed measurement error for each indicator (Garver and Mentzer, 1999). For the variance extracted, the formula is similar to that of construct reliability, except that the numerator equals the standardized regression weight (λ) between the latent variable and its indicators squared, then summed (Garver and Mentzer, 1999).

The construct reliability value is also an indicator of convergent validity. The rule of thumb for the reliability estimate is that 0.7 or higher suggests good reliability and between 0.6 – 0.7 may be acceptable. High construct reliability value indicates that internal consistency exists, meaning that the measures are all consistently representing the same latent construct (Garver and Mentzer, 1999; Hair *et al.*, 2006). Kline (1998), meanwhile, suggests that alpha values below 0.5 show that at least half of the observed variance may be due to random error and the measures are considered unreliable.

Table 3 shows the construct reliability and variance extracted values for all the latent constructs in this study. In this experiment, the construct reliability value for all the latent variables or factors was above 0.7. As suggested by previous researchers (Hair *et al.*, 2006) this shows a good reliability and that the measures are all consistently representing the same latent construct. As for the variance extracted, all of the value estimates of the constructs were above 0.7. Thus it can be concluded that the measures for HR roles produce high reliability.

Table 3: Variance Extract and Construct Reliability for HR Roles

Construct	Variance Extracted	Construct Reliability
Business Partner	0.70	0.946
Employee Champion	0.73	0.941
Administrative Experts	0.83	0.910

Concurrent Validity

To provide support for concurrent validity, correlations were examined using two prominent scales: the organizational structure scale and the HRM effectiveness scale. The results showed that business partner correlated significantly with measures of employee champion, ($r = .67$, $p < .01$), administrative expert ($r = .24$, $p < .05$), formalization ($r = -.46$,

$p < .01$), HR roles effectiveness ($r = .61, p < .01$), and HR contributions effectiveness ($r = .66, p < .01$) (Table 4).

Table 4: Bivariate Correlations among Interval Variables

		1	2	3	4	5	6	7
1	Business Partner	1.000						
2	Employee Champion	.671**	1.000					
3	Administrative Expert	.243*	.406**	1.000				
4	Formalization	-.462**	-.294**	.077	1.000			
5	Centralization	.016	-.058	-.099	.059	1.000		
6	HR Roles Effectiveness	.610**	.508**	.110	-.276**	-.075	1.000	
7	HR Contributions Effectiveness	.657**	.585**	.236*	-.240*	-.012	.724**	1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Discussion

In conclusion, the results from this investigation suggested that the multidimensional scale of HR roles is a reliable and valid scale for use in research related to HR roles in Malaysia. It was found that the exploratory factor analysis comprised three factors – business partner, employee champion, and administrative expert. These results suggested that the factor structures were replicated within the sample of Malaysian HR managers, providing support for the construct validity of this scale. This result is consistent with a study by Conner and Ulrich (1996) in which a 3-factor solution was obtained for the HR roles. The range of factor loadings was observed changing from .65 to .92 and the three factors explained 75.64 percent of the total variance.

In addition, the results of the confirmatory factor analysis indicated that HR roles also produced three factors. Overall, the fit indexes in this study indicated that the CFA for the HR roles provided a good fit to the data. This good fit was in line with those of previous studies through the use of exploratory factor analysis (Conner and Ulrich, 1996; Voermans and Van Veldhoven, 2007). Therefore, the general evaluation of this study is that the HRASQ is a reliable and valid scale for research carried out on HR managers in Malaysia.

This is one of the first studies to validate the HR roles for use among HR managers in large organizations and to subject 3 subscales to *factor analysis*. There is evidence that the HR roles questionnaire is sufficiently reliable and valid for measuring the role played by the HR managers. The major strength of the present study was the use HR managers in large organizations (n = 108), the use of exploratory factor analysis and confirmatory factor analysis methodology, and the direct application of a theoretically derived measure in HR department. The robustness of this study is further supported by the cross-validation of the confirmatory factor analysis model in a different group of participants/organizations.

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